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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,204	09/25/2001	John E. Smee	010487	2918
23696	7590	03/04/2005	EXAMINER	
Qualcomm Incorporated Patents Department 5775 Morehouse Drive San Diego, CA 92121-1714			ENG, GEORGE	
			ART UNIT	PAPER NUMBER
			2643	

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/965,204

Applicant(s)

SMEE ET AL.

Examiner

George Eng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-12,17,19-29,32 and 33 is/are rejected.
- 7) ☒ Claim(s) 2,3,13-16,18,30 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/30/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 6/30/2003 has been considered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1, 4-12, 17, 19-29 and 32-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Riera-Palou et al. ("Variable Length Equalizers for Broadband Mobile Systems", hereinafter Riera-Palou).

Regarding claim 1, Riera-Palou discloses an equalizer for reducing interference on a communication channel in a wireless communication system (page 2478, Introduction), wherein a Doppler frequency is reflective of a rate of change of the communication channel (page 2480, Transient situation), and a method for adjusting a length of the equalizer comprising increasing the length as the Doppler frequency decreases, and decreasing the length as the Doppler frequency increases (pages 2481-2484).

Regarding claims 4-5, Riera-Palou teaches to increase the length depending upon Doppler frequency (pages 2483-2484) such that increasing the length as the Doppler frequency

decreases when it is determined an elapsed time since the equalizer was last adjusted or the length was last decreased is greater than a threshold.

Regarding claims 6-7, Riera-Palou teaches to decrease the length depending upon Doppler frequency (pages 2483-2484) such that decreasing the length as the Doppler frequency increases when it is determined an elapsed time since the equalizer was last adjusted or the length was last increased is greater than a threshold.

Regarding claim 8, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 9, Riera-Palou discloses to use the equalizer to filter transmitted symbols (page 2478).

Regarding claim 10, Riera-Palou discloses the steps of receiving a second Doppler frequency that is reflective of a rate of change of the wireless communications channel at a second time, determining a difference between the first Doppler frequency and the second Doppler frequency and adjusting the length responsive to determine the difference (pages 2481-2482).

Regarding claim 11, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

Regarding claim 12, the limitations of the claim are rejected as the same reasons set forth in claims 6-7.

Regarding claim 17, Riera-Palou discloses the equalizer comprising a main tap, a first number of causal taps and a second number of anti-causal taps, and wherein decreasing the first and second number equally (page 2484).

Regarding claim 19, Riera-Palou teaches to increase the length when is determined that the difference is reflective of a decrease that satisfies a second threshold (pages 2481-2482).

Regarding claims 20-21, Riera-Palou teaches to quantize the first Doppler frequency into a first frequency bin having a first bin center and determining the length using the first bin center, wherein the length comprises consulting look-up table associating the length with the first bin center (page 2484).

Regarding claims 22-24, the limitations of the claims are rejected as the same reasons set forth in claim 10.

Regarding claim 25, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 26, the limitations of the claim are rejected as the same reasons set forth in claim 10.

Regarding claims 27-28, the limitations of the claims are rejected as the same reasons set forth in claims 20-21.

Regarding claim 29, the limitations of the claim are rejected as the same reasons set forth in claim 10.

Regarding claim 32, the limitations of the claim are rejected as the same reasons set forth in claims 6-7.

Regarding claim 33, the limitations of the claim are rejected as the same reasons set forth in claims 4-5.

Allowable Subject Matter

4. Claims 2-3, 13-16, 18 and 30-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

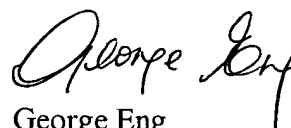
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Raleigh (US PAT. 6,219,561) discloses a wireless communication network using time-varying vector channel equalization for adaptive spatial equalization (abstract). McDowell (US PAT. 5,952,968) discloses a method for reducing jamming in a GPS satellite receiving system to increase and decrease the gain and the phase by a predetermined step size based upon the Doppler frequency shifts caused by differences in velocity (col. 1 line 11 through col. 2 line 52). Murakami (US PAT. 5,175,747) discloses an adaptive equalizer to estimate transmission channel characteristics and effect compensatory control of tap coefficients by using of a first algorithm that has fast convergence property and a tap coefficient computing unit for making compensation for relatively slow changes in a random data input (col. 3 line 52 through col. 7 line 50). Kavehrad et al. (US PAT, 4,644,562) discloses inter-symbol interference equalizer for terrestrial digital radio systems having a finite tap window size having a finite member of causal and anti-causal taps (col. 13 line 3 through col. 15 line 8). Flewitt et al. (EP 1052820 A1) discloses a method to determine the speed of mobile communication apparatus (abstract).

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Eng whose telephone number is 703-308-9555. The examiner can normally be reached on Tue-Fri 7:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A. Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George Eng
Primary Examiner
Art Unit 2643